PRELIMINARY REMARKS

Claims 1-15 are cancelled. New claims 16-25 are presented for examination Applicant believes the presently pending claims are allowable. Nonetheless, in the event that Examiner Neurauter does not immediately find the claims to be allowable, the above-referenced formal interview is requested in order to expedite prosecution of the present application.

BACKGROUND

Significant aspects of means and methods of the invention are facilitated primarily by software residing on the client node computer of a user. For example, according to the present invention, the personal computer ("PC") of a prospective consumer of a digitized work, such as a song or entertainment video, can be enabled to be a node in a Dynamic Connection Structure ("DCS"). In the context of the invention, enablement of a node means that digital software necessary to perform the desired functions resides in a location such that the PC of the user can perform the desired functions. Such desired functions include means to dynamically change the connections between the PC client node and other client nodes at any time, and especially when it is efficient to do so for the purpose of effecting the efficient transfer of all portions of a desired target file.

A DCS of client nodes is established comprising all clients involved in the file transfer and their connections to each other. As the specification states, in one preferred embodiment of the invention, this DCS is generated using an incomplete binary heap algorithm. For each client added to the Dynamic Connection Structure, a node is added to the heap. For each client removed from the DSC, the node corresponding to that client is removed from the heap. Preferably, there is direct mapping between nodes in the heap and clients in the Dynamic Connection Structure.

In some preferred embodiments, the server program is responsible for creating and maintaining the heap. When a new client requires addition to the dynamic connection structure, the client contacts the server and requests addition. The server then

adds a node representing the client to the heap using the incomplete binary heap addition algorithm, and sends the client an encoded representation of its corresponding resultant subheap. The client then inserts itself into the dynamic connection structure by contacting necessary clients, providing them with connection information derived from the server's message, and cooperatively establishing the specified connections. When a client has received the entire file or when a client crashes (hangs), a removal from the dynamic connection structure is accomplished similarly. The parent of the client contacts the server, the server removes the corresponding node from the heap, and sends information which includes a description of the new subheap to the parent. The parent then makes the necessary communications to enable the dynamic connection structure to reorganize itself in a way which contains no connections to the removed node. Thus, the server program facilitates the file transfer by organizing and specifying appropriate alterations to the connections over which the packets are transferred.

The user downloads a software application for facilitating the invention in the form of one or more modules that are adapted and arranged as browser plug-ins. The enabling software application ("ESA") can be downloaded from a website, floppy disc, CD-ROM, or other digital media such as that provided when a new computer or Internet communication device is purchased. The ESA is adapted and arranged to interact with one or more web browsers already situate on the user's device or computer, for example, with Internet Explorer or Netscape Explorer. As a particular advantage, the present invention allows client nodes to retransmit packets of a file to other clients as packets of the file are being received. This simultaneity of function increases the efficiency and dependability of digital file transfer.

REMARKS

Applicants request allowance of the pending claims. Claims 1-15 are now canceled. New claims 16-25, which recite the subject matter originally intended by original claims 1-15, are added. Thus, claims 16-25 are pending in the application and are presented for consideration in light of the remarks presented herein.

CLAIM REJECTIONS UNDER 35 USC §101

Claims 1 – 3, 6 – 12, and 14-15 stand rejected under 35 USC §101, assertedly because the claimed invention "is directed to nonstatutory subject matter." Specifically, at page 2 of the Official Action, the Examiner asserts

> Claim 1 is rejected under 35 USC §101 because claim 1 recites a data structure which is not embodied in computer readable media. Therefore, the "dynamic connection structure means" is descriptive material *per se* and is nonstatutory since the data structure cannot cause function change within a computer and the claim does not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. See Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 and MPEP 2106, section IV, and subsection (B) (1) (b).

Applicant disagrees with the Examiner's assertions in this regard, and hereby traverses the rejection. Moreover, in this regard, applicant notes that new claims 16 – 25 now recite, *inter alia*, a "Dynamic Connection Structure for facilitating the transfer of target digital files between and among client nodes of a computerized network..." With certainty, the claims now recite statutory subject matter. Accordingly, applicant requests withdrawal of the rejection.

At pages 2 and 3 of the Official Action, claims 2 and 3 stand rejected under 35 USC §101, assertedly because

> claims 2 and 3 recite computer programs claimed as computer listings *per se*, meaning they are not "physical things". Therefore, the "binary tree algorithm means" and "ordered binary tree algorithm means" are descriptive material *per se* and are nonstatutory since they are not computer components nor statutory processes, as they are not "acts" being performed. The claims do not define any structural and functional interrelationships between the computer program and other claimed aspects of the invention which permit the computer program's functionality to be realized. See MPEP 2106, section IV, subsection (B) (1) (b).

Applicant disagrees with the Examiner's assertions in this regard, and hereby traverses the rejection. Moreover, in this regard, applicant notes that new claims 16 – 25 now recite, *inter alia*, a "Dynamic Connection Structure for facilitating the

transfer of target digital files between and among client nodes of a computerized network..." With certainty, the claims now recite statutory subject matter. Accordingly, applicant requests withdrawal of the rejection.

At page 3 of the Official Action, Claims 6-12 and 14-15 stand rejected under 35 USC §101, assertedly because

> a process that consists solely of the manipulation of an abstract idea is not concrete or tangible. See In re Warmerdam, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed. Cir. 194). See also Schrader, 22 F.3d at 295, 30 USPQ2d at 1459. The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." See State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F.3d at 1373, 47 USPQ2d at 1601-02. The claimed invention does not produce a concrete and tangible result since the claimed invention, given its broadest reasonable interpretation as required by MPEP 2111, is an abstract idea that can be accomplished by manual means. The Examiner's interpretation of each claim is shown below.
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> Claim 6 is interpreted wherein "adding a node to an ordered binary tree using a binary tree addition algorithm, where the node added corresponds to a client which requires addition to the dynamic connection structure" is interpreted wherein the ordered binary tree or "dynamic connection structure" is written by hand on a piece of paper by a person and the person adds a name of a person that needs to communicate with other people contained within the ordered binary tree to the ordered binary tree by mentally performing a binary tree addition algorithm, "establishing a client's appropriate network connections based on the corresponding node's position in the ordered binary tree" is interpreted wherein the person who created the ordered binary tree on the piece of paper looks at the paper to determine what other person's names are connected with the person based on their position in the ordered binary tree, writing down the people's names and locations on another piece of paper and giving the paper to the person, and "removing a node from an ordered binary tree using a binary tree removal algorithm, where the node removed corresponds to a client which requires removal from the dynamic connection structure" is interpreted wherein the person, using an ordered binary tree or "dynamic connection structure" which is written down on a piece of paper, removes a name of a person that no longer needs to communicate with anyone contained within the ordered binary tree from the ordered binary tree by erasing the name by mentally performing a binary tree addition algorithm.
>
> Claims 7 and 8 are interpreted wherein "the positioning of a client's corresponding node in said binary tree is determined by one or more characteristics of said client" including "said client's network connection speed" is interpreted wherein a person's speed in which their ability to go to a location

where another person is used to determine where their position is within the binary tree.
Claim 9 is interpreted wherein "they type of binary tree addition algorithm used is an incomplete binary heap addition algorithm and the type of binary tree removal algorithm used is an incomplete binary heap removal algorithm" is interpreted wherein the person who writes or erases a person's name from the written binary tree is able to perform the incomplete binary heap addition and removal algorithms mentally.

Claims 10 and 11 are interpreted wherein "the positioning of nodes in the tree is ordered by one or more characteristics of said nodes' corresponding clients" including "the relative network connection speed of said nodes' corresponding clients" is interpreted wherein a person whose name is written down as a node within the binary tree and their ability to go to a location where another person at a certain speed is used to determine where their position is within the binary tree.

Claim 12 is interpreted wherein the "sending the clients information which includes new connection information" is accomplished by giving a person a piece of paper that shows another person's current location and "modifying said client's active connections in a manner determined by said information" is accomplished by writing down the other person's name and location next to the first person's name in order to correlate the two people together.

Claim 14 is interpreted wherein the "a client or server sends the client new connection information, which includes information referencing clients with which connections are required" is accomplished by a person receiving a piece of paper from another person which contains a third person's name and location who has information that the first person needs to know, "said client which receives said information completes transmission over connection that are required to closed, than closes said connections" is interpreted as once the person receives the information they need, they stop communicating with that person, and "said client establishes connections with clients, as specified in said new connection information" is interpreted as a person going to the location to talk to the person written on the piece of paper and establishing communication with the person.

Claim 15 is interpreted wherein "a client or server sends the client new connection information, which includes information referencing clients with which connections are required, and also includes new connection information for any of said clients" is interpreted as a person giving another person a piece of paper that contains the name of a third person's name and location which has information that the first person needs to know and the names and location of the person who gave the first person the piece of paper, "said client which receives said information completes transmissions over connections that are required to be closed, and closes said connections" is interpreted as once the first person receives the information they need, they stop communicating with the person, "said client establishes connections with clients, as specified in said new

connection information" is interpreted as a person going to the location to talk to the person written on the piece of paper and establishing communication with the person, "said client sends new connection information to any of said clients which require new connection information" is interpreted as once the first person learns of the needed information, the first person copies the name and location of the third person on another piece of paper and gives the piece of paper to the person who also needs the information from the third person.

Applicant disagrees with the Examiner's assertions in this regard, and hereby traverses the rejection of claims 6-12 and 14-15. Moreover, in this regard, applicant notes that new claims 16 – 25 now recite, *inter alia*, a "Dynamic Connection Structure for facilitating the transfer of target digital files between and among client nodes of a computerized network..." With certainty, the claims now recite statutory subject matter. Accordingly, applicant requests withdrawal of the rejection.

CLAIM REJECTIONS UNDER 35 USC § 112

Claim 4 stands rejected under 35 USC 112, first paragraph, assertedly because,

"the claim is considered to be of undue breadth due to a recitation of a single means that covers every conceivable means for achieving the stated purpose. See MPEP 2164.08(a) and In re Hyatt, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983)."

Applicant hereby traverses the Examiner's contentions. As the amended claims recite, the invention includes, *inter alia*, a "Dynamic Connection Structure for facilitating the transfer of target digital files between and among client nodes of a computerized network..." With certainty, the claims now recite specific subject matter, a Dynamic Connection Structure which facilitates, *inter alia*, the transfer of target digital files between and among client nodes of a computerized network." Accordingly, applicant requests withdrawal of the rejection.

CLAIM REJECTIONS UNDER 35 USC § 102

Claims 1-5 and 13 stand rejected under 35 USC 102(e), assertedly because they are anticipated by US Patent 6,633,544 to Rexford *et al.* Specifically, Examiner Neurauter asserts that:

> Regarding claim 1, Rexford discloses a dynamic connection structure means for transmitting packets between clients on a network (Figure 6; column 10, lines 45-63)." Regarding claim 2, Rexford discloses a binary tree algorithm means (Figure 8; column 12, line 19-column 13, line 56) for determining client connections in a dynamic connection structure (Figure 6; column 10, lines 45-63). (column 12, line 19-column 13, line 56, specifically column 12, lines 19-33)
> Regarding claim 3, Rexford discloses an ordered binary tree algorithm means (Figure 8; column 12, line 19-column 13, line 56) for determining client connections in a dynamic connection structure (Figure 6; column 10, lines 45-63), wherein the positioning in the binary tree of nodes, which correspond to clients in said dynamic connection structure, is ordered by one or more characteristics of said clients. (column 12, line 19-column 13, line 56, specifically column 12, lines 19-33)
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> Regarding claim 4, Rexford discloses a means of transmitting messages between clients in a dynamic connection structure, or between clients in said connection structure and external servers, or between external clients and external servers in a way which facilitates both the repetitive transmission of packets between clients in said dynamic connection structure and the repetitive reorganization of said dynamic connection structure. (Figure 6; column 10, lines 45-63; column 12, line 34-column 13, line 5)
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> Regarding claim 5, Rexford discloses a method of transferring a file between clients over a network comprising the steps of:creating of a dynamic connection structure of clients; dividing the file into packets; transferring each of the packets sequentially across open network connections contained in the dynamic connection structure. (Figure 6; column 8, lines 15-39; column 10, lines 45-63; column 12, line 34-column 13, line 5, specifically column 12, lines 34-36)
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> Regarding claim 13, Rexford discloses a method of repeatedly transmitting data packets between clients in a dynamic connection structure and repeatedly reorganizing said dynamic connection structure comprising the following order-independent steps: a client ("node") contacts a server ("node") to request addition to the dynamic connection structure; a server transmits information including new connection information to a client; a client transits information including new connection information to a client; a client transmits information including new connection information to a server; a client in said dynamic connection structure transmits one or more data packets to another client in said dynamic connection structure; a client in said dynamic connection structure transmits information to a

server regarding a client which requires removal from said dynamic connection structure. (column 3, lines 7-26; column 10, lines 45-63)

Claims 6-12 and 14-15 are rejected under 25 USC 102(a) as being anticipated by a mental process augmented by pencil and paper markings. See In re Prater, 415 F.2d 1393, 1404-05 (CCPA 1969). Claim 6 is interpreted wherein "adding a node to an ordered binary tree using a binary tree addition algorithm, where the node added corresponds to a client which requires addition to the dynamic connection structure" is interpreted wherein the ordered binary tree or "dynamic connection structure" is written by hand on a piece of paper by a person and the person adds a name of a person that needs to communicate with other people contained within the ordered binary tree to the ordered binary tree by mentally performing a binary tree addition algorithm, "establishing a client's appropriate network connections based on the corresponding node's position in the ordered binary tree" is interpreted wherein the person who created the ordered binary tree on the piece of paper looks at the paper to determine what other person's names are connected with the person based on their position in the ordered binary tree, writing down the people's names and locations on another piece of paper and giving the paper to the person, and "removing a node from an ordered binary tree using a binary tree removal algorithm, where the node removed corresponds to a client which requires removal from the dynamic connection structure" is interpreted wherein the person, using an ordered binary tree or "dynamic connection structure" which is written down on a piece of paper, removes a name of a person that no longer needs to communicate with anyone contained within the ordered binary tree from the ordered binary tree by erasing the name by mentally performing a binary tree addition algorithm.

Claims 7 and 8 are interpreted wherein "the positioning of a client's corresponding node in said binary tree s determined by one or more characteristics of said client" including "said client's network connection speed" is interpreted wherein a person's speed in which their ability to go to a location where another person is used to determine where their position is within the binary tree.

Claim 9 is interpreted wherein "the type of binary tree addition algorithm used is an incomplete binary heap addition algorithm and the type of binary tree removal algorithm used is an incomplete binary heap removal algorithm" is interpreted wherein the person who writes or erases a person's name from the written binary tree is able to perform the incomplete binary heap addition and removal algorithms mentally.

Claims 10 and 11 are interpreted wherein "the positioning of nodes in the tree is ordered by one or more characteristics of said nodes' corresponding clients" including "the relative network connection speed of said nodes' corresponding clients" is interpreted wherein a person whose name is written down as a node

within the binary tree and their ability to go to a location where another person at a certain speed is used to determine where their position is within the binary tree.

Claim 12 is interpreted wherein the "sending the clients information which includes new connection information" is accomplished by giving a person a piece of paper that shows another person's current location and "modifying said client's active connections in a manner determined by said information" is accomplished by writing down the other person's name and location next to the first person's name in order to correlate the two people together.

Claim 14 is interpreted wherein the "a client or server sends the client new connection information, which includes information referencing clients with which connections are required" is accomplished by a person receiving a piece of paper from another person which contains a third person's name and location who has information that the first person needs to know, "said client which receives said information completes transmission over connection that are required to closed, than closes said connections" is interpreted as once the person receives the information they need, they stop communicating with that person, and "said client establishes connections with clients, as specified in said new connection information" is interpreted as a person going to the location to talk to the person written on the piece of paper and establishing communication with the person.

Claim 15 is interpreted wherein "a client or server sends the client new connection information, which includes information referencing clients with which connections are required, and also includes new connection information for any of said clients" is interpreted as a person giving another person a piece of paper that contains the name of a third person's name and location which has information that the first person needs to know and the names and location of the person who gave the first person the piece of paper, "said client which receives said information completes transmissions over connections that are required to be closed, and closes said connections" is interpreted as once the first person receives the information they need, they stop communicating with the person, "said client establishes connections with clients, as specified in said new connection information" is interpreted as a person going to the location to talk to the person written on the piece of paper and establishing communication with the person, "said client sends new connection information to any of said clients which require new connection information" is interpreted as once the first person learns of the needed information, the first person copies the name and location of the third person on another piece of paper and gives the piece of paper to the person who also needs the information from the third person.

US Patent 6,633,544 to Rexford *et al.* discloses a method and system for computing and storing and storing minimum-cost routes to all destination nodes in a network. The method and system of Rexford is applied in the context of computing

quality of service routes using a source-directed connection-oriented routing environment. The route computation scheme employs an extension to Dijkstra's algorithm coupled with discretized link costs to generate a shortest-path graph with one or more routes to each destination. The Rexford invention provides a compact data structure for storing at least one minimum-cost route to each destination node in a network. Thus, Rexford et al. '544 is a method and system of finding and using efficient routing paths.

In sharp contrast, the presently claimed invention comprises a Dynamic Connection Structure for facilitating the transfer of target digital files between and among client nodes of a computerized network, the Dynamic Connection Structure comprising a plurality of said client nodes, wherein each of said target digital files consists of a number of portions, and each of said number of portions comprises packets, wherein the plurality of nodes comprises at least a first subset of nodes, the nodes of the first subset of nodes having open network connections, and wherein the first subset of nodes form a subsystem for transferring portions of files, the portions of files being transferred in each instance initially from a node configured to be a root node.

In order for an assertion of anticipation to survive scrutiny, each element of the claimed invention must be found in the cited reference, and each of the elements must relate to one another as they do in the cited reference. Neither of those circumstances exist in the present case. Thus, while Rexford discloses routing schemes and methods, the presently claimed invention addresses the enablement of particular nodes in a Dynamic Connection Structure to perform particular software-enabled functions to effect the transfer of portions of digital files from a plurality of nodes in that Structure. Without more, the Examiner's assertions are rebutted. Accordingly, their withdrawal is earnestly solicited.

In view of the above, applicants urge that claims 16-25 are in condition for allowance and requests an early notice thereof. Moreover, applicant reiterates their request for a formal interview with Examiner Neurauter. Applicants therefore request the Examiner to contact the undersigned counsel to arrange such an interview.

Moreover, if any other matter can be resolved by telephone, Examiner Neurauter is hereby requested to contact the undersigned as soon as possible, with any comments, questions or suggestions that he may have.

Respectfully submitted,

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